UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 6,876,944 B2
APPLICATION NO. : 10/777113
DATED : April 5, 2005
INVENTOR(S) : Donald R. McGaughey et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 2,
Line 66, one f the" should read -- one of the --.

Column 4,
Line 66, "DF 1118" should read -- CDF 118 --.

Column 7,
Line 3, "known that that the" should read -- known that the --.

Column 14,
Line 46, "product)."" should read -- product). --.

Column 19,
Lines 31-57, claims 38-42 should read as follows:
38. A system for estimating a motor speed comprising:

a correlation mechanism for determining a correlation between a current wave sensed at the motor and frequency pairs from a set of weighted frequency pairs representing the current wave;

a fitting mechanism for fitting components of a motor control signal to a corresponding number of first orthogonal pairs in a set of weighted orthogonal pairs, the orthogonal pairs being orthogonal to the frequency pairs;

a region determination mechanism for comparing a subharmonic from the current wave with a harmonics speed model to identify two regions in which to locate a corresponding harmonic, the subharmonic having a frequency less than a motor control signal;

a corresponding frequencies mechanism for identifying a harmonics pair of frequencies in the two regions having a separation from each other no greater than a smallest harmonic of the motor control signal, wherein one of the frequencies in the harmonics pair is the corresponding harmonic;

a speed estimation mechanism for comparing desired frequencies from the identified harmonics pairs with a harmonics speed model to determine an estimation of the speed; and

a controller in communication with the correlation mechanism, the fitting mechanism, the mse reduction mechanism and the speed estimation mechanism for coordinating the process of estimating the motor speed.

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Column 19 (cont.)

39. The system according to claim 38 wherein the fitting mechanism comprises:

an orthogonal weights mechanism for determining the orthogonal weight for an orthogonal pair from the set of weighted orthogonal pairs based on the value of one of the frequency pairs; and

a frequency weights mechanism for determining the frequency weight for a frequency pair from the set of weighted frequency pairs based on the corresponding orthogonal weight.

40. The system according to claim 38 further comprising:

a CDF analysis mechanism for determining if a previous motor speed is classified as low and providing a supplement frequency component of the motor control signal to the fitting mechanism to be fit as a second pair of the orthogonal pairs if the previous motor speed is classified as low.

41. The system according to claim 38 further comprising:

a subharmonics mechanism for searching the current wave for subharmonics between 0Hz and the frequency of the motor control signal.

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Column 19 (cont.)

42. The system according to claim 38 further comprising:

a harmonics identification mechanism for locating harmonics in the regions.

This certificate supersedes the Certificate of Correction issued October 4, 2005.

Signed and Sealed this

First Day of April, 2008

JON W. DUDAS
Director of the United States Patent and Trademark Office